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ABSTRACT

This study was conducted to examine the influence of medical, psychological, and familial factors on the coping of pediatric cancer patients. Participants were 36 pediatric cancer patients and their families under active treatment at Roswell Park Memorial Institute, a comprehensive cancer research and treatment center in Buffalo, New York. The Coping Inventory, Ways of Coping Scale, Locke-Wallace Marital Adjustment Inventory, and a Medical Index were used to assess patient's coping competence and medical experience as well as each parent's coping strategies and marital satisfaction ratings. The results revealed that coping competence was positively related to age among males while coping among females appeared to be independent of age. Self-coping among patients appeared to be strongly and negatively affected primarily by treatment side effects. The quality of the parents' marital relationship was significantly related to the child's coping competence, while parental coping strategies appeared to have much less influence. The findings raise questions about the potential benefits of intervening solely at the level of parental coping, at least when the intent is to improve the child's adjustment to illness. The results suggest that family health interventions need to be specific with regard to target outcomes at the individual, family sub-unit, and overall family levels. (NB)

Differential Impact of Medical Status, Maternal Coping, and Marital Satisfaction on Coping with Childhood Cancer

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Introduction

As links between traditional areas of medical and psychological inquiry have evolved, increasing attention has been focused on understanding the impact of physical disease on the family. Studies in the area, however, have most often limited their investigations to the assessment of the individual family member, a focus that fails to recognize the importance of a systems approach in investigations of illness in families (e.g., Turk and Kerns (1985). Similarly, despite the widespread definition of health problems as multidimensional biological, psychological and social phenomena (Leventhal, Leventhal, and Nguyen, 1985), few studies have attempted to assess more than one of these domains. The present study was designed to address a number of these issues by investigating the influence of medical, psychological, and familial factors on the coping of pediatric cancer patients.

Method

Subjects and Setting

Participants in this study were 36 (16 male; 20 female) pediatric cancer patients and their families under active treatment at Roswell Park Memorial Institute (RPMI), a comprehensive cancer research and treatment center. Patients ranged in age from one to 16 years with a mean of 9.5. Of the total sample, 31% of the pediatric patients had a diagnosis of acute lymphoblastic leukemia, 11% were Ewings sarcoma patients, 11% were non-Hodgkins lymphoma patients, and 12% had a diagnosis of AML (6%) and Rhabdomyosarcoma (6%). The remaining 35% of the subjects had a variety of diagnoses, including Osteogenic Sarcoma (3%), Neuroblastoma (3%), Pineoblastoma (3%), and others.

Measures

1. The Coping Inventory (CI; Zeitlin, 1980). The Coping Inventory is a criterion-referenced observation-based instrument which describes the adaptive behavior of children between the ages of 3 and 16. The CI assesses two broad categories of coping behavior: Self (how the child meets his own needs), and Environment (how the child responds to environmental demands). Three dimensions of behavior: Productive, Active, and Flexible may be scored within Self and Environmental Coping. Summary scores for the two types of coping are obtained by adding the three dimensional scores within each category. An overall Adaptive Behavior Index (ABI) is computed by combining the Self and Environment total scores. The present study focused on the ABI and the summary Self and Environmental Coping scores as the primary child coping dependent variables.

2. Ways of Coping Scale (WC; Lazarus and Launier, 1978). The WC is a measure of coping response that was used to assess the coping of each parent with regard to the stress associated with their child's illness. The present study used Chiriboga, Pierce and Brierton's (1980) eight factor analytically based scales to score the parental WC measures.

3. Locke-Wallace Marital Adjustment Inventory (LW; Locke & Wallace, 1959). The LW is a widely used measure of marital-adjustment and

satisfaction. The LW was completed independently by fathers and mothers of the pediatric patients.

4. Medical Index. Two important dimensions of the patient's medical experience were assessed: disease history and treatment side effects. Disease history was a summary index that included the length of time since diagnosis, and time to first relapse. This latter component reflects Katz and Jay's (1984) finding that a relapse which occurs later in the child's treatment history is potentially more distressing than earlier relapses.

Treatment side effects were assessed with a 24-item inventory of problems which commonly result from cancer treatment. Each item was rated on a five point scale (1=not present or not applicable; 5=very severe) by the patient's primary nurse on the dimensions of daily task impairment and visibility. Global scores on task impairment and visibility were then generated by summing the ratings over all of the items, and these scores were then added to form a total side effects score. The composite medical index, which was used in the regression analysis, was constructed by summing the medical history and side effects scores.

In summary, the assessment of each family included measures of the patient's coping competence and medical experience as well as each parent's coping strategies and marital satisfaction ratings.

Results and Discussion

In Table 1 means and standard deviations of the child's Coping Inventory scores are presented along with correlations between the Coping Inventory scales and patient's age. While the scores of females indicated generally higher levels of competence than males, t-tests showed that none of these differences were significant. There were clear sex differences, however, in the correlations with age. Coping competence is positively related to age among males while coping among females appears to be independent of age.

Table 2 reports means and standard deviations of the additional measures and their correlations with CI scores. Mothers and fathers did not differ significantly on the majority of the Ways of Coping scales or on their marital adjustment ratings. Mothers did, however, tend to report more self-blame based coping than fathers (correlated $t(12)=2.94, p=.01$). Surprisingly, many of the correlations between parental coping strategies and child's coping competence were negative or non-significant. For example, maternal use of cognitive control and wishfulfilling fantasy coping strategies was inversely related to patient coping. Cognitive control and wishful fantasizing may both represent attempts to selectively screen or alter information about the child's condition, and we therefore summed these scores to form an index of denial. Maternal use of denial based coping strategies was significantly and negatively related to the Environmental and Adaptive Behavior Index coping summary scores. The only coping variable which showed a significant positive relationship to the child's coping competence was a composite index reflecting high engagement in adaptive coping and low engagement in maladaptive coping. This index was, however, positively correlated with coping among mothers only. Similarly, mother's marital quality ratings were positively correlated with patient coping while father's ratings were not significantly related. All of the coping style scores and the marital adjustment scores were tested for

inpatient outpatient status effects and relapse effects (binary coded for occurence or non-occurence). There were no significant main effects or interactions.

Table 3 reports the relationship of the medical history variables and the patient's coping scores. Most notable here are the significant negative relationships between the patient's ability to cope with environmental demands and medical indicators. Self-Coping (how effectively the child meets his own needs) appears to be strongly and negatively affected primarily by treatment side effects.

Based on an examination of the simple correlations, a series of hierarchical multiple regression analyses was conducted in order to estimate the proportion of the variance in patient coping accounted for by each of three sets of predictors. Table 4 reports the semi-partial R^2 values which represent the proportion of variance attributable to the predictors beyond that accounted for by the other variables.

The medical index accounted for the largest single share of the variance on all three child coping dimensions, accounting for 16% of the variance in self coping, 38% of the variance in environmental coping, and 44% of the variance in the adaptive behavior index. The mother's marital satisfaction rating was the second best predictor, accounting for 10% of the self coping, 8% of the environmental coping, and 17% of the adaptive behavior index variance. Maternal coping was represented by the denial composite and the active mastery scale score. Surprisingly, this set accounted for no unique variance on any of the three child coping dimensions.

It is not surprising to find that a child's ability to cope, especially with environmental demands, would be strongly influenced by illness and treatment factors. It is very interesting, however, that the quality of the marital relationship would be so significantly related to the child's coping competence, while parental coping strategies appear to have much less influence. Perhaps this is a case similar to those described by Scarr (1985) in which proximal (in this case parental coping strategies) versus distal variables (marital quality) are being compared. Scarr found that when background variables (such as mother's intelligence) were included in a regression model predicting the variance in children's IQ, the effects of proximal variables (such as mother's disciplinary behavior) were greatly reduced. She suggested that hierarchical models of nested theories may provide better models of behavioral phenomena and may "save us fruitless attempts at intervention" (p. 501).

These results do indeed raise questions about the potential benefits of intervening solely at the level of parental coping, at least when the intent is to improve the child's adjustment to their illness. This is not to suggest, however, that interventions addressing parental coping styles will be ineffective with regard to coping outcomes for the parents themselves. Perhaps, as Bowen's (1978) family systems theory suggests, the marital relationship is a powerful determinant of adjustment in children. The present analysis suggests that family health interventions need to be specific with regard to target outcomes at the individual, family sub-unit, and overall family levels.

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Table 1

Coping Inventory Scores of Pediatric Cancer Patients Broken Down by Patient Sex

Coping Inventory Scale

Self-Related Coping	Patient Sex: Male (n=16) r With Age	Mean	Sd	Female (n=20) r With Age	Mean	Sd
Productive	.64**	3.46	1.13	-.07	3.95	.75
Active	.57*	3.61	1.17	-.27	4.15	.56
Flexible	.65**	3.43	1.20	.04	3.94	.95
Total	.62*	3.53	1.06	-.12	4.04	.73
Environment-Related Coping						
Productive	.56*	3.78	1.13	.00	4.19	.62
Active	-.61**	4.48	1.95	-.34	4.01	.86
Flexible	.61**	3.27	1.33	-.09	3.98	.61
Total	.43	3.72	1.05	-.19	4.06	.63
Adaptive Behavior Index	.11	3.82	.79	-.16	4.08	.63

*p<.05 **p<.01 ***p<.001

Table 2
Parent's Coping and Marital Adjustment: Means, Standard Deviations and Correlations with Child Coping Scores

Parent Coping	Mean	SD	Child Coping: Self-Coping	Child Coping: Environmental Coping	Child Coping: Adaptive Behavior Index
Cognitive Control					
Mother (N=24)	2.22	1.31	-.42*	-.33*	-.33*
Father (N=16)	2.24	1.64	.22	.29	.27
Wishfulfilling Fantasy					
Mother	4.69	1.86	-.43*	-.14	-.26
Father	4.49	2.26	.08	.07	.08
Active Mastery					
Mother	4.22	1.43	-.19	-.25	-.25
Father	4.12	2.09	-.17	-.15	-.15
Self-Blame					
Mother	1.72	1.35	.18	.14	.01
Father	1.41	1.23	-.06	-.37	-.23
Growth					
Mother	7.72	1.53	.24	.29	.17
Father	7.77	2.28	-.21	-.07	-.15
Helpseeking					
Mother	3.72	1.05	.01	.00	-.10
Father	2.94	1.44	-.27	-.23	-.27
Emotive Control					
Mother	2.59	.95	-.05	.18	-.03
Father	2.82	1.13	.33	.11	.22
Fatalism					
Mother	3.34	1.47	-.25	-.11	-.07
Father	3.47	1.64	-.05	.01	-.03
Emotion Focused Coping					
Mother	20.69	5.44	-.17	.00	.01
Father	20.47	6.30	-.08	-.14	-.12
Problem Focused Coping					
Mother	12.66	3.53	.15	.08	.16
Father	12.53	5.70	-.14	-.05	-.11
Denial					
Mother	6.91	2.48	-.27	-.51**	-.36*
Father	7.12	3.33	.16	.14	.16
Adaptive Coping Engagement					
Mother	-1.03	1.44	.50**	.34*	.32*
Father	-.86	1.38	-.20	-.18	-.17
Marital Adjustment Score					
Mother	102.83	28.16	.68***	.57**	.42**
Father	108.50	32.46	-.10	-.31	-.22

*p<.05 **p<.01

Note: The Denial Score was computed by summing the scores on wish-fulfilling fantasy and cognitive control. The procedure for computing the Adaptive Coping Engagement score is available from the authors.

Table 3

Index of Patient Medical Experience: Means, Standard Deviations and Correlations with Patient Coping Scores

	Mean	SD	Correlations with Patient Coping		
			Self	Environment	ABI
Composite Medical Index	40.50	43.33	-.18	-.49**	-.37*
Components					
Side effects	8.81	13.92	-.39*	-.42**	-.10
Months since diagnosis	21.23	21.20	-.25	-.42*	-.36*
Relapse	35.00	25.02	-.06	-.36*	-.25

*p<.05 **p<.01

Table 4

Independent Contribution of Mother's Coping, Marital Adjustment and the Patient Medical Index to Patient Coping (Semi-Partial R^2)

	Dependent Variable		
Predictor Set	Self	Environment	ABI
Mother's Coping (denial, active mastery)	0	0	0
Mother's Marital Adjustment	.10	.08	.17
Patient Medical Index	.16	.38	.44
Multiple R^2	.49	.69	.84

Note: All equations were statistically significant at each step with one exception. When mother's coping was entered first, all equations were non-significant for all three dependent variables. However, all equations were significant at $p \leq .03$ at steps 2 and 3.